Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A system for optimizing data access, comprising:

a file server capable of communicating with one or more clients; and

a plurality of storage elements organized into pairs for storing a plurality of files, each pair having a master storage element and at least one mirrored storage element, and each mirrored storage element having a copy of data stored on the master storage element;

wherein the file server maintains file information on where each of the plurality of files is stored on which pair of storage elements, and maintains access load information regarding each one of the pair of storage elements; ~~and~~

wherein when a client requests file information for a requested file from the file server, the file server determines which pair of storage elements has the requested file, and ~~further determines which~~ returns to the client information including a storage element within the pair of storage elements that is to be accessed, the storage element being identified based upon use of the storage system, and

wherein the client initiates I/O operations with the identified storage element to access the requested file absent the file server.

2. (Original) The system according to claim 1 wherein the plurality of storage elements is a plurality of disk drives.

3. (Previously presented) The system according to claim 1 wherein the plurality of storage elements are provided in a single storage system.

4. (Previously presented) The system according to claim 1 wherein the plurality of storage elements are provided in at least two storage systems.

5. (Original) The system according to claim 1 further comprising:
a plurality of host computers;
wherein the file server resides on one of the plurality of host computers; and
wherein the one or more clients reside on remaining ones of the plurality of host computers.

6. (Previously presented) The system according to claim 1 further comprising apparatus configured to synchronize data stored on each pair of storage elements.

7. (Previously presented) The system according to claim 1 wherein the master storage element and the at least one storage element within a pair are contained in a single storage system.

8. (Canceled)

9. (Previously presented) The system according to claim 1 wherein if it is determined that a mirrored storage element is to be accessed for the requested file and the mirrored storage element which is to be accessed contains a latest copy of data for the requested file stored on the corresponding master storage element, the client directly retrieves the requested file from the mirrored storage element.

10. (Previously presented) The system according to claim 9 wherein if it is determined that a mirrored storage element is to be accessed for the requested file and the mirrored storage element which is to be accessed does not contain a latest copy of data for the requested file stored on the corresponding master storage element, the latest copy of data for the requested file stored on the corresponding master storage element is retrieved from the corresponding master storage element and then forwarded to the client.

11. (Original) The system according to claim 1 wherein the file information on where each of the plurality of files is stored on which pair of storage elements includes file allocation lists.

12. (Previously presented) The system according to claim 1 wherein when determining which of the storage elements within the pair of storage elements having the requested file is to be accessed, consideration is given to ensure that all the storage elements within the pair of storage elements having the requested file are accessed in a substantially balanced manner.

13. (Original) The system according to claim 1 wherein upon determining which of the storage elements within the pair of storage elements having the requested file is to be accessed, the file server forwards information relating to the determination to the client thereby allowing the client to retrieve the requested file from the determined storage element.

14. (Original) The system according to claim 13 wherein upon forwarding the information relating to the determination to the client, the file server updates the access load information to ensure accurate monitoring of access balance of the pairs.

15. (Currently amended) A system for optimizing data access comprising:

a first host computer having a file system server, the first host computer capable of communicating with a second host computer having a file system client; ~~and~~

a storage system having a plurality of disk drives organized into pairs for storing a plurality of files, each pair having a master disk drive and at least one mirrored disk drive, each mirrored disk drive having a copy of data stored on the master disk drive;

wherein the file system server maintains file information on where each of the plurality of files is stored on ~~which~~ each pair of disk drives and further maintains access load information on each pair of disk drives; ~~and~~

wherein when a file system client requests file information for a requested file from the file system server, the file system server determines which pair of disk drives has the requested file and returns to the file system client information including a disk drive ~~further determines which disk drive~~ within the pair of disk drives that is to be accessed, the disk drive being identified based upon use of the storage system; and

wherein the file system client, absent the file system server, initiates I/O operations with the identified disk drive to access the requested file.

16. (Original) The system according to claim 15 wherein the file information on where each of the plurality of files is stored on which pair of disk drives includes file allocation lists.

17. (Previously presented) The system according to claim 15 wherein when determining which of the disk drives within the pair of disk drives having the requested file is to be accessed, consideration is given to ensure that all the disk drives within the pair of disk drives having the requested file are accessed in a substantially balanced manner.

18. (Original) The system according to claim 15 wherein upon determining which of the disk drives within the pair of disk drives having the requested file is to be accessed, the file system server forwards information relating to the determination to the file system client thereby allowing the file system client to retrieve the requested file from the determined disk drive.

19. (Original) The system according to claim 18 wherein upon forwarding the information relating to the determination to the file system client, the file system server updates the access load information to ensure accurate monitoring of access balance of the pairs.

20. (Currently amended) A system for optimizing data access comprising:

a first host computer having a file system server, the first host computer capable of communicating with a second host computer having a file system client; ~~and~~

a plurality of storage systems, each of the plurality of storage systems having a plurality of disk drives, the plurality of disk drives from the plurality of storage systems being collectively organized into pairs for storing a plurality of files, each pair having a master disk drive and at least one mirrored disk drive, each mirrored disk drive having a copy of data stored on the master disk drive;

wherein the file system server maintains file information on where each of the plurality of files is stored on which pair of disk drives and further maintains access load information on each pair of disk drives; ~~and~~

wherein when a file system client requests file information for a requested file from the file system server, the file system server determines which pair of disk drives has the requested file and returns to the file system client information including a ~~further determines which~~ disk drive within the pair of disk drives that is to be accessed, the disk drive being identified based upon use of the storage system; ~~,~~ and

wherein the file system client, absent the file system server, initiates I/O operations with the identified disk drive to access the requested file.

21. (Original) The system according to claim 20 wherein the file information on where each of the plurality of files is stored on which pair of disk drives includes file allocation lists.

22. (Previously presented) The system according to claim 20 wherein when determining which of the disk drives within the pair of disk drives having the requested file is to be accessed, consideration is given to ensure that all the disk drives within the pair of disk drives having the requested file are accessed in a substantially balanced manner.

23. (Original) The system according to claim 20 wherein upon determining which of the disk drives within the pair of disk drives having the requested file is to be accessed, the file system server forwards information relating to the determination to the file system client thereby allowing the file system client to retrieve the requested file from the determined disk drive.

24. (Currently amended) The system according to claim ~~20~~ 23 wherein upon forwarding the information relating to the determination to the file system client, the file system server updates the access load information to ensure accurate monitoring of access balance of the pairs.

25. (Original) The system according to claim 20 wherein if it is determined that a mirrored disk drive is to be accessed for the requested file and the mirrored disk drive which is to be accessed contains a latest copy of data for the requested file stored on the corresponding master disk drive, the file system client directly retrieves the requested file from the mirrored disk drive.

26. (Original) The system according to claim 20 wherein if it is determined that a mirrored disk drive is to be accessed for the requested file and the mirrored disk drive which is to be accessed does not contain a latest copy of data for the requested file stored on the corresponding master disk drive, the latest copy of data for the requested file stored on the corresponding master disk drive is retrieved from the corresponding master disk drive and then forwarded to the file system client.

27. (Currently amended) A method for optimizing data access comprising:

organizing a plurality of storage elements into pairs for storing a plurality of files, each pair having a master storage element and at least one mirrored storage elements, each mirrored storage element having a copy of data stored on the master storage element;

maintaining file information on where each of the plurality of files is stored on ~~which~~ each pair of storage elements;

maintaining access load information on each one of the pair of storage elements; ~~and~~

upon receiving a request for a requested file, determining which pair of storage elements has the requested file, and then determining which storage element within the pair of storage elements is to be accessed; ~~by using the access load information~~ and

returning file access information including a storage element within the pair of storage elements that is to be accessed, the storage element being identified based upon use of the storage system,

wherein I/O operations are initiated with the identified storage element using the file access information, and

wherein said file access information is returned to a client thereby allowing the client to retrieve the requested file absent a file server.

28. (Canceled)

29. (Currently amended) The method of claim [[28]]27 further comprising upon ~~forwarding the information relating to the determination~~ returning file access information to the client, updating the access load information to ensure accurate monitoring of access balance of the pairs.

30. (Original) The method according to claim 27 wherein the plurality of storage elements are stored on a single storage system.

31. (Previously presented) The method according to claim 27 wherein the plurality of storage elements are stored in at least one storage system.

32. (Previously presented) The method according to claim 31 further comprising upon determining that a mirrored storage element is to be accessed for the requested file and the mirrored storage element which is to be accessed contains a latest copy of data for the requested file stored on the corresponding master storage element, retrieving the requested file from the mirrored storage element directly.

33. (Previously presented) The method according to claim 31 further comprising upon determining that a mirrored storage element is to be accessed for the requested file and the mirrored storage element which is to be accessed does not contain a latest copy of data for the requested file stored on the corresponding master storage element, retrieving the latest copy of data for the requested file stored on the corresponding master storage element from the corresponding master storage element.

34. (Original) The method according to claim 27 wherein when determining which of the storage elements within the pair of storage elements having the requested file is to be accessed, consideration is given to ensure that all the storage elements within the pair of storage elements having the requested file are substantially accessed in a balanced manner.

35. (Original) The method according to claim 27 wherein the plurality of storage elements includes a plurality of disk drives.

36. (Currently amended) A method for optimizing data access between a file server and at least one or more clients comprising:

organizing a plurality of disk drives into pairs for storing a plurality of files, each pair having a master disk drive and at least one mirrored disk drive, and each mirrored disk drive having a copy of data stored on the master drive;

maintaining file information on where each of the plurality of files is stored on which pair of disk drives;

maintaining access load information on each pair of disk drives, wherein the file information and the access load information are maintained at the file server;

upon the file server receiving a request for a requested file from a client, causing the file server to determine which pair of disk drives has the requested file by using the file information, and then causing the file server to ~~determine~~ identify which disk drive within the pair of disk drives is to be accessed by using the access load information; and

forwarding information relating to the identified disk drive ~~determination as to which disk drive within the pair of disk drives is to be accessed~~ to the client thereby allowing the client to initiate I/O operations, absent the file server, to retrieve the requested file.